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“Concerning the definition by a system of functional properties of the function $f(z) = \frac{\sin \pi z}{\pi}$.”

Prof. E. Hastings Moore, The University of Chicago.

“Bertrand’s paradox and the non-Euclidean geometry.”

Prof. George Bruce Halsted, University of Texas.

“Analytical theory of the errors of interpolated values from numerical tables.”

Prof. R. S. Woodward, Columbia College.

“Upon the problem of the minimum sum of the distances of a point from given points.”

Prof. V. Schlegel, Hagen, Germany.

“On the fundamental laws of algebra.”

Prof. Alexander Macfarlane, of Canada.

“About cube numbers whose sum is a cube number.”

Dr. Artemas Martin, Washington, D. C.

“Reduction of the resultant of a binary quadric and m -ic by virtue of its semi-combinant property.”

Prof. Henry S. White, Northwestern University.

We have received a complete solution to problem 5, Average and Probability, from Professor Philbrick. This solution, which is quite long, will appear as soon as we find room for it.

We have received from Professor E. S. Loomis, a complete investigation of the various problems relating to Loan Associations. We are sorry that we can not publish this excellent investigation; but as an entire issue of the MONTHLY devoted to it would not be of interest to the great majority of our readers, we reluctantly give the space to other matter.

BOOKS AND PERIODICALS.

Laboratory Studies in Elementary Chemistry. By Le Roy C. Cooley, Ph. D., of Vassar College. pp. 144, price 50 cts. New York: American Book Co.

The book contains 150 experiments devoted to the fundamental facts and principles of elementary Chemistry. Following a statement of the *object* of each experiment are specific directions for the work to secure the proper conditions for the experiment; the result is then left to be detected by the student. This handsome book from Prof. Cooley seems to us to be a thoroughly good thing in the way of introducing successful experimenting on the part of the student. We heartily recommend it to the attention of teachers who have classes in elementary work. J. M. C.

Field Book for Civil Engineers. By Daniel Carhart, C. E., Professor of Civil Engineering, Western University of Pennsylvania. pp. 294. Price, \$2.50. Boston: Ginn and Co. 1893.

This book is from the publisher’s “Department of Special Publication,” and

is designed to meet the needs of students of civil engineering, as well as to satisfy the demands of field engineers for a manual convenient in size, containing the desired information so arranged as to be of easy reference.

The book relates particularly to the work of locating a railroad, setting the slope stakes, computing the quantities, and solving the problem of track laying. It is crowded with the various problems which arise in field practice accompanied with full explanations, and supplemented by many illustrative examples.

We note particularly the simplicity of the chapter on "Setting Slope Stakes," and commend the practical character of the treatment of "Frogs and Switches", the latter of which is contributed by L. C. Weldin, C. E., Asst. Engineer on the Pennsylvania R. R.

The book contains all the necessary tables. The printing of a portion of these on tinted paper and the absence of vertical lines in others, are new and pleasing features, which tend to facility and ease in consulting them. The book is $6\frac{1}{2} \times 4$ in size, and is bound in morocco with flap. Professor Carhart's book admirably supplies the requirements of a model field manual.

J. M. C.

An Elementary Treatise on Fourier's Series and Spherical, Cylindrical, Ellipsoidal Harmonics, with Applications to Problems in Mathematical Physics. By William Elwood Byerly, Ph. D., Professor of Mathematics in Harvard University. 8 vo., cloth, xii + 288 pp. Mailing price, \$3.15. Boston and Chicago: Ginn & Co.

This treatise we consider a valuable addition to American text-books. It can not fail to be of great value to the student of mathematical physics and to all persons who have to perform calculations of the kind considered. It is crowded full of physical problems of all sorts to many of which are given excellent solutions. The book is clearly printed and is very attractive in appearance. Our limited space forbids giving a more extended notice of this excellent work.

B. F. F.

The Mathematical Gazette: A Terminal Journal for Students and Teachers. Edited by E. M. Langley, M. A., Bedford, England. No. 1. and No. 2. Price of each, Six-pence, net.

We have just received Nos. 1 and 2 of this journal and predict for it a bright future. The object of the journal is to give to teachers of mathematics the benefit of one another's experience in methods of teaching. It says "It cannot be doubted that many teachers are in possession of methods of their own which experience has shown to be better than those most in vogue. They are asked to let others have the advantage of knowing these special methods." The *Gazette* has the best wishes of the MONTHLY.

B. F. F.

A Treatise on Plane Surveying. By Daniel Carhart, C. E., Professor of Civil Engineering in the Western University of Pennsylvania, Allegheny. Illustrated, 8vo., half leather. xvii + 493 pages. Mailing price, \$2.00. Boston and Chicago: Ginn & Co.

This work is the result of twenty years' experience in the field and in technical schools and the aim of the author has been to make the work extremely practical. That he has succeeded in this, no one will doubt after using the book for a short time. The work covers the whole ground of Plane Surveying, illustrating and describing the instruments employed, their adjustments and uses; it exemplifies the best methods of solving the ordinary problems occurring in practice, and furnishes solutions for many special cases which frequently present themselves. We heartily commend the work to all teachers who desire the best book on the subject.

B. F. F.